

First record of Neumann's Starling *Onychognathus neumanni* breeding in an urban area, with notes on semi-colonial breeding

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Première donnée de nidification de la Rufipenne de Neumann *Onychognathus neumanni* en milieu urbain. En septembre 2009, un couple de Rufipenne de Neumann *Onychognathus neumanni* a été découvert nichant sur un bâtiment à Bamako, au Mali. C'est la première fois que l'on observe une nidification de cette espèce sur une structure artificielle et c'est la deuxième fois qu'un nid de cette espèce est décrit. Le plumage des jeunes est également décrit et illustré pour la première fois. Par ailleurs, la reproduction de l'espèce en colonies lâches est décrite pour la première fois.

Summary. In September 2009, a pair of Neumann's Starlings *Onychognathus neumanni* was observed nesting on a man-made structure for the first time, in Bamako, Mali. The nest, sited on a ledge on a building, is only the second of this species to be described. The plumage of freshly fledged juveniles is also described and illustrated for the first time. Additionally, this is the first reported instance of semi-colonial breeding for this species.

Neumann's Starling *Onychognathus neumanni* is a characteristic element of the West African cliff-dwelling avifauna, with a patchy, rather local distribution throughout its range (Borrow & Demey 2001, Craig & Feare 2009). It breeds on cliffs, rocky outcrops and inselbergs (Feare & Craig 1998) and was long considered to be conspecific with the allopatric Red-winged Starling *O. morio* from South and East Africa. However, due to morphological differences, *O. neumanni* is now widely considered to be a separate species (Craig 1988, 2000). In September 2009, I found a pair of Neumann's Starlings nesting on a house in Bamako, Mali. The species has not previously been reported to nest on man-made structures. In addition, this is only the second nest of this species to be described. Descriptions and photographs of a freshly fledged young are also presented here for the first time.

Description of nest site and nest

On 9 September 2009, I observed a pair of Neumann's Starlings at the Laboratoire Central Vétérinaire (LCV), the national veterinary institute, near Sotuba, in the eastern outskirts of Bamako, Mali. On 13 September, I found a nest containing at least one pullus. The nest was sited under a roof on the west-facing wall of a single-storey building, in the corner of a ledge c.3 m above the ground (12°40'01.6"N 07°54'55.7"W). The nest was a cup constructed mainly of dry leaf

stalks of *Lannea acida* (Fig. 1–2); the base was of mud. The nest was c.20 cm high and c.30 cm in diameter. This is only the second nest of this species to be described (Craig 2000). Previously, nests were found in Côte d'Ivoire (Parelius 1967)



Figure 1. (left) Nest site of Neumann's Starling *Onychognathus neumanni*, Laboratoire Central Vétérinaire, Bamako, Mali, 13 September 2009 (Marco Thoma)

Emplacement du nid de Rufipenne de Neumann *Onychognathus neumanni*, Laboratoire Central Vétérinaire, Bamako, Mali, 13 septembre 2009 (Marco Thoma)

Figure 2. (right) Nest of Neumann's Starling *Onychognathus neumanni*, Bamako, Mali, 13 September 2009 (Marco Thoma)

Nid de Rufipenne de Neumann *Onychognathus neumanni*, Bamako, Mali, 13 septembre 2009 (Marco Thoma)

and in Nigeria (Woods 1967). The structure of the nest in Bamako corresponds with the former, which was described as a 'simple cup of straw' (Parelius 1967). In Nigeria, Woods (1967) found 'ragged nests of grass and sticks' but did not provide any further details. Regretably, the nest at the LCV was destroyed by institute staff shortly after the young had fledged and therefore could not be analysed in detail. No egg shells were found. Rocky hills, which presumably offer the closest suitable natural breeding habitat, are located c.3 km south-east and c.3 km north of the LCV.

Breeding phenology and additional observations

The nestlings fledged between 13 and 17 September, most probably around 15th. Assuming that Neumann's Starling has a similar incubation and nestling period to that of Red-winged Starling, the date of egg laying and hatching was calculated according to Rowan (1955). The mean incubation period for the last eggs of Red-winged Starlings using man-made structures at Tierbos, South Africa, was 15 days and the young fledged after 22–28 days ($n = 14$). Based on these data, hatching in Bamako probably occurred around 21 August and the last egg would have been laid between 5 and 10 August.

A family group was observed on 18 and 27 September with two juveniles present on 27th. Thereafter, no more than one juvenile was seen until 16 October. On 22 October three individuals were observed foraging with c.150 glossy starlings *Lamprolornis* sp., several Piapiacs *Ptilostomus afer*, one Red-billed Hornbill *Tockus erythrorhynchus* and at least two Senegal Coucals *Centropus senegalensis*, but the age of the birds could not be assessed. The adults were observed regularly at the LCV until 30 January 2010. On different occasions they were seen near the former nest site, especially in the evening. They were not observed again until 13 February when I last worked at the LCV. The adults made no attempt to construct a new nest.

Between September 2009 and February 2010 Neumann's Starlings were also observed at Korofina-Nord (12°40'01"N 07°57'17"W), a densely populated area c.3 km west of the LCV. Single individuals were heard on 2 and 26 December and 9 January, one was observed on a



Figure 3. Juvenile Neumann's Starling *Onychognathus neumanni*, c.3 days after leaving the nest, Bamako, Mali, 18 September 2009 (Marco Thoma)

Rufipenne de Neumann *Onychognathus neumanni*, juvénile, environ trois jours après avoir quitté le nid, Bamako, Mali, 18 septembre 2009 (Marco Thoma)

mosque on 7 December, and two were seen flying east on 5 January.

Semi-colonial breeding in Mali

Neumann's Starlings were rather common around two hills c.25 km south-west of Bamako. There I observed three nests with adults feeding young within an area <100 m on an east-facing cliff (12°31'45"N 08°09'06"W) on 31 October and 8 November 2009. In all three cases both adults fed the young. The nests were well concealed inside crevices, but begging calls were heard when the adults arrived. Semi-colonial breeding by Neumann's Starling does not appear to have been reported previously (Feare & Craig 1998, Craig & Feare 2009).

Description of juvenile plumage

The juvenile observed on 18 September had a swollen, whitish gape, brown-tinged black plumage and rectrices that were still growing (Fig. 3). Primaries were already like those of adults, although the rufous coloration appeared slightly duller. By 27 September gape swelling was reduced by c.50 %, with the still-swollen parts white (Figs. 4–5). The juvenile observed on 16 October had a slightly swollen rear edge to the gape (Fig. 6).



Figure 4–5. Juvenile Neumann's Starling *Onychognathus neumanni*, c.13 days after leaving the nest, Bamako, Mali, 27 September 2009 (Marco Thoma)

Rufipenne de Neumann *Onychognathus neumanni*, juvénile, environ 13 jours après avoir quitté le nid, Bamako, Mali, 27 septembre 2009 (Marco Thoma)



Figure 6. Juvenile Neumann's Starling *Onychognathus neumanni*, c.1 month after leaving the nest, Bamako, Mali, 16 October 2009 (Marco Thoma)

Rufipenne de Neumann *Onychognathus neumanni*, juvénile, environ un mois après avoir quitté le nid, Bamako, Mali, 16 octobre 2009 (Marco Thoma)

Based on photographs, the feathers of the upper breast and throat had paler shaft-streaks, which were already visible on 27 September, becoming more pronounced by mid October. By this time, the juvenile had a greyish wash to the head, chin and upper breast (Fig. 6). The iris was brown, as in adults (Figs. 7–8) and this colour did not change during my observations. The inside of the upper mandible was whitish (Fig. 3), whereas in adults it is black (Fig. 7). The wing-coverts already

appeared glossy. On 22 November, a juvenile was observed near the site where semi-colonial breeding was observed. Its precise age could not be assessed. However, it had a slightly swollen rear edge to the gape and was still being fed by adults. Based on the photograph, this individual also had a greyish wash to the head and upper breast (Fig. 9).

Discussion

This record of Neumann's Starlings nesting on a man-made structure indicates that the species may potentially extend its range by adapting to urban environments, hence following a strategy already adopted by Red-winged Starlings in southern and eastern Africa (Rowan 1955, Craig & Feare 2009). It is difficult to determine whether this is a recent trend or not. Madsen (*in* Paludan 1936) observed Neumann's Starlings 'at the houses' in Bamako in 1927, which may suggest earlier associations with human settlements. Several observations in Senegal far from suitable natural breeding habitats may be indicative of the species' exploratory capabilities (Morel 1985). However, no other observations of Neumann's Starlings from cities or villages have been published. As the species is omnivorous, dispersive and, as reported here, also able to use urban environments, range expansions may be observed in future.



Figure 7. Adult male Neumann's Starling *Onychognathus neumanni* (with adult female in background), Bamako, Mali, 13 September 2009 (Marco Thoma)

Adult male Rufipenne de Neumann *Onychognathus neumanni*, mâle adulte (avec femelle adulte en arrière-plan), Bamako, Mali, 13 septembre 2009 (Marco Thoma)

The calculated start of breeding for the pair in Bamako lies outside the breeding period mentioned by Lamarche (1981) for Mali (September–March). However, in neighbouring countries such as Côte d'Ivoire (Parelius 1967) and Burkina Faso (Thonnerieux 1988) breeding has been recorded as early as July.

Semi-colonial breeding has never been explicitly reported. However, Newton (*in* Bannerman 1948) indicates the presence of at least two breeding pairs on the same cliff in Cameroon, and Woods (1967) reports several nests on a cliff at Kigom Hills, Nigeria. Although this may indicate semi-colonial breeding, spatial information is lacking in both cases so that the proximity of nests cannot be evaluated. According to Feare & Craig (1998), Red-winged Starlings are semi-colonial breeders.

Juveniles are reported to resemble adult males but have duller plumage (e.g., Feare & Craig 1998). The juvenile observed on 16 October had already developed a greyish head *c.*1 month after fledging. Hence it resembled an adult female, even though the greyish coloration was less extensive and intense. In Red-winged Starlings the development of sexual dimorphism commences at *c.*6 months (A. Craig *in litt.* 2011). Although the



Figure 8. Adult female Neumann's Starling *Onychognathus neumanni*, *c.*25 km south-west of Bamako, Mali, 22 November 2009 (Marco Thoma)

Rufipenne de Neumann *Onychognathus neumanni*, femelle adulte, environ 25 km au sud-ouest de Bamako, Mali, 22 novembre 2009 (Marco Thoma)



Figure 9. Juvenile Neumann's Starling *Onychognathus neumanni*, *c.*25 km south-west of Bamako, Mali, 22 November 2009 (Marco Thoma)

Rufipenne de Neumann *Onychognathus neumanni*, juvénile, environ 25 km au sud-ouest de Bamako, Mali, 22 novembre 2009 (Marco Thoma)

description of head coloration is based only on a limited number of photographs and its further development could not be followed after mid October, my observations may indicate swifter

development of sexual dimorphism in Neumann's Starling.

Acknowledgements

Many thanks go to Dr Esther Schelling from the Swiss Tropical and Public Health Institute in Basle, for making my stay in Mali possible. Myles Menz commented on a draft of the manuscript and improved my English. Dr Bernard Volet of the Swiss Ornithological Institute corrected the French summary. Dr Christian Marti and Ursula Spiess from the Swiss Ornithological Institute and Youna Zahn at the Natural History Museum of Berne, provided references. Dr Cyrille Chatelain at the Conservatoire et Jardin Botaniques in Geneva, and Dr Volker Salewski kindly identified the *Lannea acida* parts. Dr Adrian Craig and Ron Demey provided useful comments on the submitted version of the manuscript.

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Received 11 July 2011; revision accepted 20 November 2011.